Remarks/Arguments

These remarks are in response to the Office Action dated April 18, 2007. This reply is timely filed. At the time of the Office Action, claims 1-19 were pending in the application. Claims 1, 10, and 11-19 were rejected under 35 U.S.C. §101. Claims 1-9 and 10-19 have been rejected under 35 U.S.C. 102(e). The rejections are set out in more detail below.

I. Claim Rejections Under 35 U.S.C. §101

Claims 1, 10, and 11-19 were rejected under 35 U.S.C. §101, citing the claimed invention is directed to non-statutory subject matter. In this regard, the Examiner states that the subject matter recited in independent claims 1, 10, and 11 lacks a practical application since the subject matter fails to produce a useful, concrete, and tangible result. More specifically, the Examiner notes that the claimed subject matter provides for the granting of an entity's request if and only if, the entity doesn't complete a temporal access pattern, and the entity's predetermined access level meets the minimum access level of the first base node. The Examiner asserts that this conditional statement yields a tangible result only if access is granted, and therefore makes for a non-tangible result. In response, Applicants have amended the subject matter of independent claims 1 and 10 to include the following conditional statement: "denying said request if said access request completes a prohibited temporal access pattern for said entity." Applicants have also amended the subject matter of independent claim 11 to include the following phrase: "wherein said processing means denies said request if said access request completes a prohibited temporal access pattern for said entity". Applicants believe that the currently amended independent claims 1, 10, 11 overcome the Examiners rejection under 35 U.S.C. §101.

II. Brief Review of Applicants' Invention

Prior to addressing the Examiner's rejections on the art, a brief review of the Applicants' invention is appropriate. The invention relates to a method and apparatus for using an adaptive lattice mechanism to enforce computer security. *See* paragraph [0023]. Generally, the method involves receiving in the computer system a request from an entity. *See* paragraphs [0009], [0033] and FIG. 6. The entity can be a user or a process and can have a predetermined access authorization level for access to a first base node representing an information type or a computer system function. *See* paragraph [0009]. The method also involves determining if the access request completes a prohibited temporal access pattern for the entity. *See* paragraphs [0009], [0033] and FIG. 6.

In this regard, it should be appreciated that a temporal access pattern is defined by a temporal relation between two or more nodes. *See* paragraph [0028]. A temporal relation is an inter-propositional relation that communicates the ordering in time of events. *See* paragraph [0028] and FIG. 1. For example, a prohibited temporal access pattern of a node A is defined by a temporal relation between an item N_1 and an item N_2, e.g., $N_1 \rightarrow N_2$. Thus, a temporal ordering at node A exists that the item N_1 is accessed before the item N_2. So, for the security policy associated with node A to be activated, not only must the item N_1 and item N_2 be accessed but they must be accessed in the order indicated by the temporal relation.

If it is determined that the access request completes a prohibited temporal access pattern for the entity, then the request is rejected. *See* paragraphs [0009], [0033] and FIG. 6. Otherwise, the method continues with a comparison of a minimum access level established for the first base node to the predetermined access authorization level assigned to the entity. *See* paragraphs [0009], [0035] and FIG. 6. If the minimum access level for the first base node does not exceed to the predetermined access authorization level, then access request is granted. *See* paragraphs [0009], [0035] and FIG. 6. However, if the minimum access level for the first base node exceeds the predetermined access authorization level assigned to the entity, then the access request is denied. *See* paragraphs [0009], [0035] and FIG. 6.

III. Claim Rejections Under 35 U.S.C. §102(e)

Claims 1-9 and 10-19 have been rejected under 35 U.S.C. §102(e) as being taught by U.S. Patent Publication No. 2004/0044655 to Cotner ("Cotner"). Cotner discloses and teaches a method of controlling access to a relational database. *See* paragraphs [0009], [0053], [0072]-[0084] and FIG. 7B. The method includes receiving a user request for data from the database, in which the request includes a request to perform a database operation and a user security label. *See* paragraphs [0009], [0073] and FIG. 7B. User security information is determined from the user security label. *See* paragraphs [0009], [0074] and FIG. 7B. In response to the user request, rows of data are retrieved from a table in the database that satisfy the database operation, in which the rows each have a security label. *See* paragraphs [0009], [0074] and FIG. 7B. The method further includes determining row security information for each of the retrieved rows based on the row's security label. *See* paragraphs [0009], [0074] and FIG. 7B. For each retrieved row the method determines whether the user is authorized to access the row based on the user security information and the row security information. *See* paragraphs [0009], [0074] and FIG. 7B. Only the rows for which the user is determined to have authorization to access are returned to the user. *See* paragraph [0009] and FIG. 7B.

A. Independent Claims 1 and 10

Claim 1 concerns a method for secure access to a computer system. Claim 10 concerns a method for restricting access to a computer system having logical base nodes representing an information type and/or a computer system function. Claims 1, 10 recite in relevant part "determining if an access request completes a prohibited temporal access pattern for an entity". Claims 1, 10 also recite in relevant part "granting the access request only if it does not complete a prohibited temporal access pattern for the entity". Claims 1, 10 further recite in relevant part "denying the request if the access request completes a prohibited temporal access pattern for said entity."

Upon review of the Cotner reference, it becomes readily apparent that it fails to disclose and/or teach the step of "determining if an access request completes a prohibited temporal access pattern for an entity". It also becomes readily apparent that the Cotner reference fails to disclose and/or teach granting or denying an access request based on the outcome of the determination step. Instead, the Cotner reference teaches a method for controlling access to a relational database based solely on security levels. *See* paragraphs [0009], [0053], [0072]-[0084] and FIG. 7B. Accordingly, a person skilled in the art may interpret the Cotner reference as failing to teach temporal access patterns and an access request control technique utilizing temporal access patterns.

It should be noted that the Examiner opines that paragraph [0034] of the Cotner reference discloses and/or teaches the step of "determining if an access request completes a prohibited temporal access pattern for an entity". However, Applicants have reviewed the cited paragraph [0034] and can find no such teaching. In this regard, it should be appreciated that the cited paragraph [0034] discloses and teaches user security labels identifying certain security levels, such as top secret, secret, and unclassified. The cited paragraph [0034] also discloses and teaches permitting access to data by determining if the user has the proper security level to view the data. In effect, the cited paragraph [0034] fails to disclose and/or teach an access request control technique that involves determining if an access request completes a prohibited temporal access pattern for an entity.

In view of the forgoing, the Cotner reference fails to disclose and teach the steps recited in claims 1, 10. Accordingly, Applicants request reconsideration and allowance of pending claims 1, 10. Claims 3-9 are believed to be in condition for allowance at least by virtue of their dependence upon an allowable base claim. Accordingly, reconsideration and allowance of claims 3-9 is also requested.

B. <u>Independent Claim 11</u>

Claim 11 concerns a secure computer system. Claim 11 recites in relevant part "a secure computer system comprising a temporal access table." Claim 11 also recites in relevant part "a secure computer system comprising a processing means programmed for comparing an access request to the temporal access table to determine if the access request completes a prohibited temporal access pattern for an entity." Claim 11 further recites in relevant part that the "processing means denies the request if the access request completes a prohibited temporal access pattern for the entity and grants the access request only if it does not complete a prohibited temporal access pattern for the entity."

Upon review of the Cotner reference, it becomes readily apparent that it fails to disclose and/or teach a secure computer system comprising a temporal access table. It also becomes readily apparent that the Cotner reference fails to disclose and/or teach a processing means programmed for comparing an access request to the temporal access table to determine if the access request completes a prohibited temporal access pattern for an entity. Instead, the Cotner reference teaches a secure computer system configured for controlling access to a relational database based solely on security levels. *See* paragraphs [0009], [0053], [0072]-[0084] and FIG. 7B. Accordingly, a person skilled in the art may interpret the Cotner reference as failing to teach temporal access patterns and a means for implementing an access request control technique utilizing temporal access patterns.

It should be noted that the Examiner opines that paragraphs [00030] and [0034] of the Cotner reference disclose and/or teach a temporal access table. However, Applicants have reviewed the cited paragraphs [00030], [0034] and can find no such teaching.

In view of the forgoing, the Cotner reference fails to disclose and teach the subject matter claimed in claim 11. Accordingly, Applicants request reconsideration and allowance of pending claim 11. Claims 13-19 are believed to be in condition for allowance at least by virtue of their dependence upon an allowable base claim. Accordingly, reconsideration and allowance of claims 13-19 is also requested.

IV. Conclusion

Applicants have made every effort to present claims which distinguish over the prior art, and it is believed that all claims are in condition for allowance. Nevertheless, Applicants invite the Examiner to call the undersigned if it is believed that a telephonic interview would expedite the prosecution of the application to an allowance. In view of the foregoing remarks, Applicants respectfully request reconsideration and prompt allowance of the pending claims.

Respectfully submitted,

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Date

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